Laboratory announces 2008 Fellows

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Robert Albers, Paul Johnson and Kurt Sickafus recognized for contributions

LOS ALAMOS, New Mexico, December 4, 2008—Los Alamos National Laboratory Director Michael Anastasio has announced selection of three exceptional scientists as 2008 Laboratory Fellows. Designation as a Laboratory Fellow is recognition of sustained outstanding scientific contributions and exceptional promise for continued professional achievement.

Robert C. Albers, Paul A. Johnson and Kurt E. Sickafus received the honor this year. The designees come from a diversity of scientific disciplines and have sustained high-level achievement important to the Laboratory, become recognized authorities in their fields and made important discoveries used or cited by peers inside and outside of the Laboratory.

“The selection of these distinguished scientists was based on a very rigorous peer review process and honors their considerable scientific accomplishments,” said Terry

Wallace, Principal Associate Director for Science, Technology and Engineering. “I am pleased to have such a distinguished class of Fellows for 2008 that reflects the amazing breadth of scientific talent at LANL.”

The title of Fellow is bestowed on only about 2 percent of the Laboratory’s current technical staff. Fellows play a continuing role in helping maintain the scientific excellence of the Laboratory. Fellows often are asked by the Laboratory Director to assess issues and provide advice. As recognized leaders, Fellows are advocates for the continuing conduct of science at the Laboratory.

Albers of the Laboratory’s Theoretical Division is an internationally recognized expert on the role of electronic structures on the physical properties of complex materials. His pioneering work has greatly contributed to the Laboratory’s leadership in understanding the electronic structures of actinides and other metals and alloys. Albers has been solicited by the journal Nature for published comments regarding recent work on the modeling of plutonium. In addition, he has collaborated with researchers at the University of Washington in work leading to a successful quantitative model for X-ray absorption fine structure (XAFS). The model makes the connection between XAFS and electronic structure across the Periodic Table of the Elements. This research enabled development of a predictive model that has provided an extremely powerful tool for XAFS researchers worldwide and has had a large impact on X-ray studies of materials. Albers’ publications have been cited more than 7,000 times by other scientists.

Johnson of the Laboratory’s Earth and Environmental Sciences Division is recognized as a driving force behind a new field of research: nonlinear, nonequilibrium dynamics. Johnson’s research has identified and defined a new class or domain of materials that, due to defects or damage propagating over a wide range of length scales, exhibit large degrees of nonlinear, nonequilibrium elastic behavior. The new domain comprises nearly all damaged materials, some ceramics and some metals ubiquitous in natural and engineered systems. Johnson’s discovery has implications for geophysics, nondestructive evaluation of materials, seismology and medical diagnostics. Recently Johnson became widely known for research that showed how earthquakes can trigger one another, sometimes long after the original event has subsided. His work is also leading to possible development of new diagnostic tools for osteoporosis, and he has contributed to programs that monitor for potential nuclear explosions. Johnson’s published papers have been cited nearly 1,200 times.

Sickafus of the Laboratory’s Materials Science and Technology Division is among the world’s leading experts in understanding the effects of radiation on solid materials. In particular, Sickafus is an expert in the radiation tolerance of complex oxide ceramics. His research has led to development of predictive models for radiation susceptibility in a wide range of oxide materials and helped identify substances that are particularly radiation tolerant. Such materials are key for possible use in nuclear reactors or possibly for safe, long-term disposal of high-level nuclear waste. Sickafus’ work has also led to insights into the structure of complex ceramic materials and he is regarded as being among the nation’s leaders in electron microscopy. His scientific papers have been cited 2,100 times and he is a prior recipient of the Los Alamos Fellows’ Prize, which commends individuals for outstanding research that has had a significant impact on a scientific discipline.